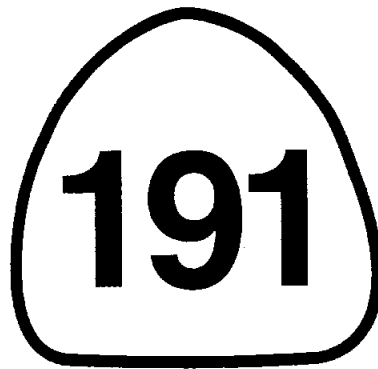


**TRANSPORTATION CONCEPT  
REPORT**

**STATE ROUTE 191**



**DEPARTMENT OF TRANSPORTATION • DISTRICT 3**

**TRANSPORTATION CONCEPT REPORT**

**STATE ROUTE 191**

**BUTTE COUNTY PM 0.0 - 11.4**

**BY  
CALTRANS  
DISTRICT 3**

**SEPTEMBER 1993**

**APPROVAL RECOMMENDED:**

*Jody E. Loneragan*  
**JODY E. LONERGAN**  
Deputy District Director  
Planning and Public Transportation

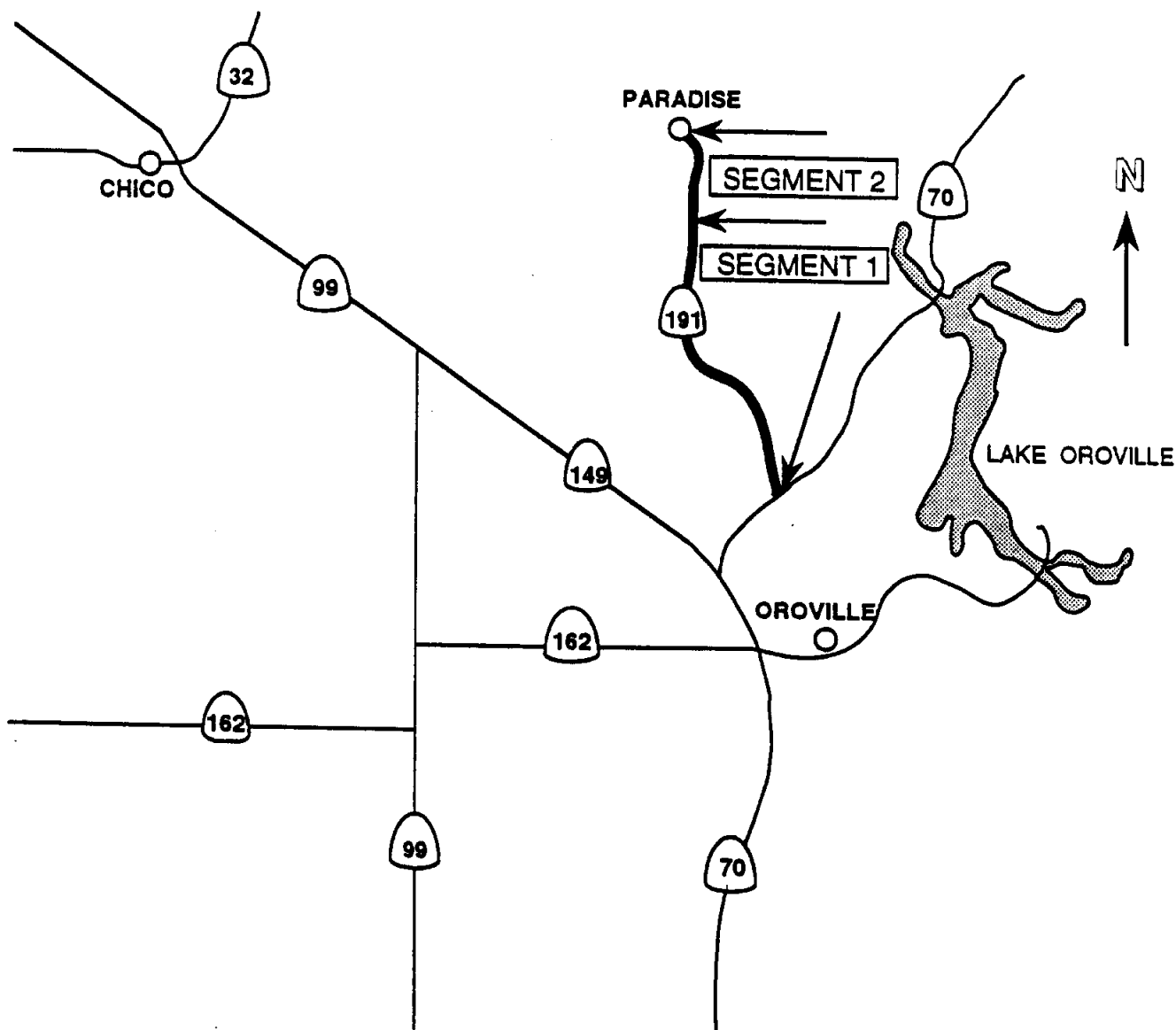
10/13/93  
Date

**APPROVED:**

*for* *Steven E. Kirkpatrick*  
**JOHN L. ALLISON**  
District Director  
District 3, Marysville

10/13/93  
Date

ROUTE 191 SEGMENT MAP



LEGEND

STATE ROUTE 191	
SEGMENTS	
STATE ROUTES	
CITIES	

## ROUTE 191 TRANSPORTATION CONCEPT REPORT SUMMARY

Segment- County	Postmile	Existing Facility	Existing LOS	Concept Facility	Concept LOS	Ultimate Transportation Corridor
1 - Butte	0.0/9.5	2C	D	2C*	D	2C**
2 - Butte	9.5/11.4	2C	E	2C***	E	2C****

\* Uphill passing lanes where feasible.

\*\* Improved shoulders, uphill passing lanes, better geometric alignment in the canyon with additional right of way where feasible.

\*\*\* Uphill passing lanes plus continuous left-turn lane, where feasible.

\*\*\*\* Concept plus one additional lane in each direction.

### CONCEPT RATIONALE

State Route (SR) 191 is one of four primary arterials serving the transportation needs of the 45,000 residents of the Town of Paradise and the surrounding communities of Magalia and Paradise Pines. It is the only State highway access to those communities via Clark Road and the Skyway through Paradise. Due to the regional growth and recent local concern for emergency evacuation, in case of a natural disaster, the regional importance of this route has increased. The Paradise Ridge area and nearby City of Chico are currently experiencing significant levels of population growth. These areas represent a population base of over 60 percent of the total population of Butte County, and it is anticipated that these growth trends will continue throughout the 20-year planning period. Due to the access limitations to the Town of Paradise and the communities of Magalia, Paradise Pines, Paradise Ridge area, it is essential that appropriate operating conditions be provided on SR 191 to ensure the economical vitality of this area.

SR 191 is characterized by narrow paved and unpaved shoulders, poor curvilinear alignment, limited left-turn channelization and limited passing opportunities. The primary focus for future improvements on SR 191 should include capacity and operational improvements such as left-turn channelization and shoulder improvements. Transportation System Management (TSM) Travel Demand Management (TDM) measures, development, and implementation should be encouraged for the efficient use of the existing system.

### SEGMENT

### DEFICIENCIES

### CONCEPT IMPROVEMENTS

- |   |   |   |
|---|---|---|
| 1 | Level of service will decline to LOS E by the year 2000; inadequate paved and unpaved shoulders; poor curvilinear alignments; and limited uphill passing opportunities. | Widen to 40' minimum pavement standards, add uphill passing lanes and improve shoulders, wherever feasible.   |
| 2 | LOS will decline to LOS F during peak hours by the year 1999; limited uphill passing opportunities and left-turn lanes.   | Add an uphill passing lane and a continuous left-turn lane from south Town of Paradise limits to Pearson Road. Encourage development and implementation of TSM and TDM measures. Technical support should be provided for local planning efforts to study the extension of Route 191 to Route 32. |

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## ROUTE 191 TRANSPORTATION CONCEPT REPORT

### **INTRODUCTION AND PLANNING INTENT**

The Transportation Concept Report (TCR) is a long-term planning document that evaluates the conditions of a given State transportation corridor, establishes a twenty-year planning concept and includes an ultimate transportation concept to view the corridor beyond the 20-year horizon. The focus of the TCR is to develop a fully integrated, multimodal transportation system within a specific route corridor with consideration given to funding and environmental constraints as well as the political feasibility.

Caltrans, in cooperation with local and regional agencies, prepares the TCR and updates them as route conditions change and new information is obtained. The Federal Intermodal Surface Transportation Act (ISTEA) of 1991, has changed the State and local planning process as well as the funding mechanism to develop an integrated, intermodal transportation system. ISTEA mandates coordination of land use, transportation and air quality through a partnership of all involved agencies.

A TCR is used as a preliminary planning document leading to future programming. It should be realized that the specifics of any given proposed concept improvement may undergo modifications during the various phases of project development. Beyond the 20-year planning horizon, the TCR focuses on corridor preservation and the application of new technologies.

### **ROUTE DESCRIPTION AND PURPOSE**

State Route (SR) 191 is a south/north highway spanning 11.4 miles from Route 70/191 Junction north to Pearson Road in the Town of Paradise in Butte County. The route is functionally classified as a two-lane rural minor arterial that traverses rolling and mountainous terrain. This route connects the Butte Community College to the Town of Paradise and the regionally significant State Route 70. The route serves a major commute route between Paradise and nearby Butte College and the City of Oroville during peak periods. SR 191, also referred to as Clark Road, continues north from the terminus of SR 191 to connect to Skyway which provides access to Magalia and Paradise Pines communities. Skyway links Paradise with Chico and SR 99 and serves most of the demand to the west.

### **ROUTE CONCEPT**

Segment- County	Postmile	Existing Facility	Existing LOS	Concept Facility	Concept LOS	Ultimate Transportation Corridor
1 - Butte	0.0/9.5	2C	D	2C*	D	2C**
2 - Butte	9.5/11.4	2C	E	2C***	E	2C****

\* Uphill passing lanes where feasible.

\*\* Improved shoulders, uphill passing lanes, better geometric alignment in the canyon with additional right of way where feasible.

\*\*\* Uphill passing lanes plus continuous left-turn lane, where feasible.

\*\*\*\* Concept plus one additional lane in each direction.

## **CONCEPT RATIONALE**

State Route (SR) 191 is one of four primary arterials serving the transportation needs of the 45,000 residents of the Town of Paradise and nearby communities of Magalia and Paradise Pines to the north of town. It is the only State highway access to these communities via Clark Road and the Skyway. Due to the regional growth and recent local concern for emergency evacuation in case of a natural disaster the regional importance of this route has increased. The Paradise Ridge area and nearby City of Chico are currently experiencing significant levels of population growth. These areas represent a population base of over 60 percent of the total population of Butte County, and it is anticipated that these growth trends will continue throughout the 20-year planning period. Due to the access limitations to the communities of Magalia, Paradise Pines, Paradise Ridge area, and the Town of Paradise, it is essential that appropriate operating conditions be provided on SR 191 to ensure the economical vitality and safety of this area.

SR 191 is characterized by narrow paved and unpaved shoulders, poor curvilinear alignment, insufficient left-turn channelization and insufficient passing opportunities. The primary focus for future improvements on SR 191 should include capacity and operational improvements such as left-turn channelization and shoulder improvements. Transportation System Management (TSM) measures development and implementation should be encouraged for the efficient use of the existing system.

## **SEGMENT BY SEGMENT ANALYSIS**

For analysis purposes, Route 191 is divided into two segments which reflect the transition between rural areas (Segment 1) and the Town of Paradise (Segment 2). Pavement width on this two-lane conventional highway varies from 28 to 44 feet, with the widest portion in the Town of Paradise.

### **Segment 1 (Butte 191 PM 0.0/9.5): From Route 70/Route 191 Junction to Paradise Town Limit**

This segment of the route passes through rolling terrain at the junction with Highway 70 and then traverses mountainous terrain near the Town of Paradise. The entire first segment passes through grazing and ranch lands.

Butte Community College is located off this Segment on Durham Pentz Road. The college's average daily attendance is 11,000 students, most of whom commute from Chico along Highway 99 and Durham/Pentz Road. The Butte College's five-year plan is expected to increase the enrollment to over 13,000 students by 1995.

In this segment, a bridge replacement and road rehabilitation project from the junction of Route 70 to 0.1 mile north of Clear Creek Bridge is programmed in 1992 HSOPP Midcycle Revision. This project is scheduled for construction by the 1995/96 fiscal year.,

### **Level of Service**

	1991	Segment 1 2005	2015
Peak Period LOS	D	E	E
Concept LOS	D	D	D
AADT	5,100	9,000	11,800

**Segment 2 (Butte 191 PM 9.5/11.4) from Paradise Town limit to Pearson Road**

This segment is dominated by mountainous terrain with limited passing opportunities and narrow shoulders. Although the volume of slow moving trucks and recreational vehicles are very low, any increase to such traffic during the peak periods can hinder the traffic along this segment drastically. The last 0.4 mile of the route from Noffsinger Lane to Pearson Road is lined with strip commercial development and numerous commercial/residential driveways, parking lots and intersecting streets (both paved and unpaved). Under given conditions and anticipated growth rate, Segment 2 will fall below concept level of service by year 2000. An additional lane in each direction will eliminate the deficiency. The Butte County Congestion Management Program (CMP) calls for an uphill passing lane and left-turn center lane in this segment from Pearson Road to the southern Paradise Town limits.

**Level of Service**

	1991	Segment 2 2005	2015
Peak Period LOS	E	F	F*
Concept LOS	E	E	E
AADT	8,700	15,500	20,400

\*The Level of Service (F) represents the demand to capacity ratio where the volume to capacity ratio is greater than 1.00

**LAND USE**

Highway 191 traverses open grazing land from the junction with Route 70 through the foothills to the Town of Paradise. According to May 1993 Butte County Regional Transportation Plan (RTP) the Paradise Ridge Area is expected to experience continued infill development with limited density due to lack of sewer services within the area. This area is currently eighty to ninety percent builtout considering the existing physical, environmental and economic conditions. This plan also assumes that the population of the Paradise Ridge Area will exceed the 50,000 limit and qualify the area as a Standard Metropolitan Statistical Area (SMSA) by the year 2000. The principal type of development for Paradise Urbanized Area is residential. The total number of housing units, in Paradise Urbanized Area, is expected to approach 25,000 by 2010 from its over 16,000 level in 1990, based on information from the above document. The Revised Draft June 1993 Paradise General Plan indicates that the population growth rate for Paradise Urbanized Area will be at an average 1.3 percent per year for the next five to eight years.

**IMPROVEMENTS NECESSARY TO ATTAIN ROUTE CONCEPT**

The following transportation improvement strategies were developed in concert with regional transportation planning, air quality, and where applicable, congestion management goals. The primary focus of these strategies is to reduce the demand for the existing transportation facilities through trip reduction measures.

**Transportation System Management and Transportation Demand Management**

- Current and future applicable and innovative Transportation System Management (TSM) measures should be carefully developed and implemented through a local Transportation Management Association (TMA) on a continuous and consistent basis. Caltrans, Butte County Air Pollution Control District (APCD) and the Butte County Association of Governments' (BCAG) active involvement to



promote and provide technical and financial assistance towards TSM measures along Route 191 are essential both in terms of transportation and air quality improvements, particularly between Butte College and the Town of Paradise. BCAG and Butte County (APCD) are in the process of developing a Memorandum of Understanding for the development of TSM measures which can be used in Air Pollution Control Plan. The Chico Chamber of Commerce has recently developed a TMA using grants from Caltrans, BCAG, Butte County APCD, and membership fees for the Chico area. The formation of this TMA is expected to play a major role in implementing and achieving the TSM measures in the Chico area.

#### **Transit**

- Increase the frequency of the Butte County Transit service during peak periods along Route 191 as the ridership increases.

#### **Capacity Enhancement**

- To accommodate future traffic demand, Route 191 should be widened to a 40-foot paved section where feasible.
- Left-turn channelization and passing uphill lanes should be provided where appropriate and warranted, between Paradise and Butte College by 2010.
- Butte County CMP identifies two improvements; an uphill passing lane to the south end and a center left-turn lane from Pearson Road to Industrial Park.
- The access road to the Paradise Skypark Airport should be improved to provide a left-turn lane.
- Pentz Road Intersection with Route 191 should be monitored for future signalization.
- Technical support should be provided for local planning efforts to study the extension of State Route 191 to State Route 32.

#### **COORDINATION WITH OTHER PLANS**

The following documents were reviewed for coordination of this report:

##### **Butte County May 1993 Regional Transportation Plan (RTP)**

The Butte County Association of Governments (BCAG) May 1993 RTP was reviewed for incorporation into this TCR. According to this Plan, a road and bridge rehabilitation project is programmed for SR 191 at Postmile 0.0/4.8 for the years 1994/95 with assured funding. This project is programmed in the 1992 HSOPP Midcycle Revision for construction by the year 1995/96. Adding passing lanes to the north of Butte College on SR 191 and extension of SR 191 to SR 32 are identified as short- and long-range projects without assured funding.

BCAG, through a consultant, has developed a transportation model for the Chico and Paradise urban areas. The model will be used to identify and analyze the ability of the transportation system to accommodate the demand of potential urban growth.

### **Butte County Congestion Management Program (CMP)**

The Butte County's 1992 CMP has recommended minimum LOS standard D along all the designated segments of the streets and highway network. SR 191, for the entire route, is identified with LOS A for the period from 1990 to 2005 according to this plan. LOS A is inconsistent with this TCR analysis which is based on the 1991 traffic data. The CMP identifies two improvements; an uphill passing lane to the south end and a center left-turn lane from Pearson Road to Industrial Park.

The LOS calculation for Butte County CMP is based on the travel forecast results from the Butte County Planning Model which was developed and calibrated for 1990 as base year. Then, two seven-year forecasts were completed. The first forecast (1997) was to determine the LOS without any improvements to the network as "No-Build" despite traffic growth. The second forecast (2005) was to determine overall system efficiency after considering the capital improvement programs.

### **Paradise General Plan**

The Revised Draft June 1993 General Plan of the Town of Paradise was reviewed for coordination with this report. The plan proposes a four-lane undivided arterial by the year 2007 to carry the projected volume of 18,000 ADT at the level of service C for the Route 191 from southern town limits to Pearson Road.

The Plan identifies the attempt to preserve the rural charm of the Town as one of the most important issues. This Plan has identified specific growth management criteria, with emphasis on constraint analysis system, to manage the growth in orderly and safe manner within the planning area. LOS D threshold is selected for street and road system during the planning period as a growth management tool.

The following developments, assumptions and issues from the Paradise General Plan are significant in respect to SR 191 operation during the fifteen-year planning period:

- Encouraging new growth and development to the unincorporated south area upon annexation.
- Light industrial development along the east of Route 191 in the vicinity of White Ridge and Old Clark Road.
- Infill residential development between Skyway and Pentz Road to the south of Pearson Road.
- Continuous population change from a predominantly senior citizen to a large share of families with school age children.
- Slow residential growth due to lack of water and sewer services.
- Regional coordination of land use, economic and transportation issues.
- Emergency evacuation routes including Route 191.

### **Butte County General Plan Update (Issues and Options Report and Draft Background Report) March 1993.**

The Butte County General Plan Update (Issues and Options Report and Draft Background Report) March 1993 was reviewed for coordination with this TCR. This draft update indicates

that Paradise and the Upper Ridge areas have been among the fastest growing areas in the County over the last twenty years. Despite of popularity of these areas, growth within the incorporated limits of the Town of Paradise will likely be constrained due to inadequate drainage, sewage and transportation facilities. These limitations could push the future development into the unincorporated areas to north of town or into rural areas to the south in the Central Butte Area. The Study Plan also makes references to the BCAG 1990 RTP which calls for the development of passing lanes between Paradise and Butte College and identifies two options for extension of SR 191. Option One is to extend SR 191 to Skyway and Option Two is to extend it to SR 32.

### **PUBLIC TRANSIT AND MULTIMODAL/INTERMODAL CONSIDERATIONS**

The following transportation modes are either currently available or need improvements as they are identified.

#### **Transit**

- The Butte County Transit provides transit service between the communities of Chico, Paradise, Oroville, Biggs, Gridley and Durham by using six buses which are equipped with wheel chair lifts and bicycle racks. The Butte County Transit uses the Skyway and State Route 191 to provide services to the Paradise area. This system interfaces with Chico Area Transit System which operates between 6:30 a.m. and 7:30 p.m. Coordination of Butte County Transit and Chico Area Transit to provide service to the Amtrak Station in Chico would offer another intermodal option to residents of Paradise and nearby communities.
- The Paradise Express is the demand responsive transportation system for the Paradise urban area serving the disabled and the senior citizens (62 years and older).
- Greyhound Bus lines serves the Paradise area with regularly scheduled bus services.

#### **Air Transportation**

- Paradise Skypark Airport provides services to the residents of Paradise area. Due to its location above the fog line, it operates as reliever airport for cargo transport to the northern Sacramento Valley during the severe fog conditions and winter time.

#### **Goods Movement**

- The Paradise urban area and vicinity rely heavily on the truck transportation for movement of goods and local products. Skyway is the preferred route for truck movement to Paradise area compared to Route 191. There is no rail connection to this area and Skypark Airport handles a very limited portion of the cargo movement during winter months.

#### **Park and Ride**

- The corner of State Route 191 and Pearson Road in Paradise is utilized by Butte College students as a Park and Ride lot to commute between the college and Paradise. The Paradise Town Hall parking lot is also used by commuters to Chico. Caltrans, in coordination with BCAG and the Town of Paradise, should designate a formal Park and Ride site in Paradise for commuters to Butte College and Chico.

**Non Motorized**

- State Route 191 is identified as a commuter and recreational bicycle corridor providing service to the Paradise Ridge area. However, the mountainous portions of this route have steep terrain combined with narrow shoulders, high speed highway traffic, and limited sight distance that makes this facility rather unattractive for bicycling. Any future improvements to Route 191 should consider providing wider shoulders for appropriate bike facilities between Paradise and Butte College with coordination with the Town of Paradise for connecting to Paradise urban area bike circulation.
- There is no designated recreational or pedestrian trail or walkway along or parallel to Route 191 or in its close proximity, except for the available shoulders and sidewalks within the Paradise town limits. This deficiency should be mitigated within the town limits, by local efforts, for both safety and inter mobility purposes.

**ULTIMATE TRANSPORTATION CORRIDOR**

Beyond the year 2015, Route 191 should be a two-lane conventional with improved shoulders, added uphill passing lane, improved geometric alignments and additional right of way where feasible. Within the developed areas of Paradise, the facility may need to be expanded to a four-lane conventional facility with continuous left-turn as concurrent with travel demand and the applicable political, environmental and financial constraints.

**COMMENTS FROM REGIONAL AND LOCAL AGENCIES**

The Draft Transportation Concept Report was circulated among the Town of Paradise, Butte County Public Works and the Butte County Association of Governments. Comments from these agencies are addressed in this report.

**EXHIBIT A****ASSUMPTIONS**

1. Roadway widths, as discussed in Transportation Concept Reports are used for the purpose of estimating improvements costs and may change depending upon operating conditions and design standards at the time of actual project development.
2. The relative importance of state highways in the District can generally be established based on the functional classification of the routes. In general, higher priorities will be given to major improvements on principal arterial routes as compared to minor arterials and collectors.
3. For routes, the District can reasonably expect to improve (generally Principal Arterials), realistic concept Level of Service (LOS) must be established for each route in order to have route concepts and route development plans which are possible to achieve, given a forecast of future revenues. A concept LOS is not established on routes that will only be rehabilitated and/or maintained.
4. Level of service and capacity calculations are based on the 1985 Highway Capacity Manual.
5. Determination of future LOS for the routes in District 3 are based in part upon statewide and District forecasts of state highway travel developed by Caltrans.
6. Route concepts are generally uniform for an entire route, unless there is a major change in function along the route.
7. Major projects will be developed to meet standards acceptable to the Federal Highway Administration in order to receive federal funding for projects. Otherwise, a "design exception" will be prepared during the project development process.
8. Safety projects will be pursued on an on-going basis in order to be responsive to safety measures as they are identified. This report is consistent with BCAG's 1993 Regional Transportation Plan, the Town of Paradise draft June 1993 General Plan and the 1992 Butte County Congestion Management Program.

**EXHIBIT B**

**SEGMENT DATA TABLE**

	<b>ROUTE 191</b>	
	Junction Routes 191/70 to Paradise Town limits	Paradise Town Limits to end of Route (Pearson Road)
Post Mile	0.0/9.5	9.5/11.4
Segment-County	1-BUT	2-BUT
Present Fac (post STIP)	2C	2C
Concept Facility 2015	2C	2C
LOS 1991 (Average) Peak	D	E
LOS 2005 (Average) Peak	E	F
LOS 2015 (Average) Peak	E	F
Concept LOS (20-year)	D	E
AADT 1991	5,100	8,700
AADT 2005	9,000	15,500
AADT 2015	11,800	20,400
% Traffic Growth/Year	5.5%	5.6%
Post STIP Capacity	2,270	2,270
Peak Period V/C 1991	0.36	0.55
Peak Period V/C 2005	0.63	0.98
Peak Period V/C 2015	0.82	1.28
LOS Falls Below Concept	2000	1999
PHV 1991	540	880
PHV 2005	966	1,599
PHV 2015	1,266	2,100
Peak Hour Dir Split 1991	55%	55%
Peak Hour % Trucks 1991	5%	5%
Daily Truck % 1991	8%	7%
Tot Acc Rate Vs State Average	0.59	0.63
F + I Acc Rate vs State Avg	0.70	0.74
Land Use	Grazing	Commercial
Terrain	Rolling-mountainous	Mountainous-rolling

For Further Information  
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